

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/765,622 Confirmation No. 1354
Applicants : Anthony H. vanZuilekom and
Chi-Huang Chang
Filed : January 27, 2004
TC/A.U. : 3672
Examiner : William P. Neuder

Title : Probe Isolation Seal Pad
Docket No. : 1391-48300
Client Ref. No.: 2002-IP-011539
Customer No. : 23505

Date : May 15, 2006

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

REPLY TO FINAL OFFICE ACTION DATED FEBRUARY 15, 2006

Sir:

Please amend the above-identified application as follows and consider the following remarks in reply to the final Office action dated February 15, 2006.

Amendments to the Claims are reflected in the listing of the claims that begins on page 2 of this paper.

Remarks begin on page 9 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A seal pad for sealing against a borehole wall comprising:
a base plate;
an expandable material engaged with the base plate; and
a retainer wall configured to retain at least a portion of the expandable material that is expanded when sealed against the borehole wall in a lateral plane of expansion of the expandable material.
2. (currently amended) The seal pad of claim 1 where the retainer wall is configured to laterally retain the entire perimeter of the expandable material in a lateral plane of expansion of the expandable material when sealed against the borehole wall.
3. (currently amended) The seal pad of claim 1 where the retainer wall further comprises an expansion cavity, at least a portion of the expandable material being expanded into the cavity when sealed against the borehole wall.
4. (previously presented) The seal pad of claim 3 where the expansion cavity is located around the entire perimeter of the expandable material in a lateral plane of expansion of the expandable material when sealed against the borehole wall.
5. (currently amended) The seal pad of claim 1 where the retainer wall is integrated with the base plate.
6. (currently amended) The seal pad of claim 5 where the retainer wall comprises a rib on at least a portion of the base plate.

7. (currently amended) The seal pad of claim 1 where the retainer wall comprises a surface around the entire perimeter of the expandable material in a lateral plane of expansion of the expandable material when sealed against the borehole wall.
8. (canceled)
9. (canceled)
10. (original) The seal pad of claim 1 where the expandable material comprises an elastomeric material.
11. (original) The seal pad of claim 1 where the expandable material comprises rubber.
12. (original) The seal pad of claim 1 where the expandable material comprises Teflon.
13. (currently amended) A method of forming a seal against a borehole wall comprising:
 sealingly engaging the borehole wall with at least a portion of an expandable material engaged with a base plate, at least a portion of the expandable material expanding during engagement of the borehole wall; and
 retaining the expansion of at least a portion of the expandable material in a lateral plane of expansion with a retainer wall.
14. (currently amended) The method of claim 13 further comprising retaining the entire perimeter of the expandable material in a lateral plane of expansion with the retainer wall.
15. (original) The method of claim 13 further comprising expanding at least a portion of the expandable material into a retainer expansion cavity when engaging the borehole wall.

16. (previously presented) The method of claim 15 further comprising expanding the expandable material into the expansion cavity around the entire perimeter of the expandable material in a lateral plane of expansion.

17. (canceled)

18. (canceled)

19. (currently amended) A formation tester for engaging the wall of a borehole comprising:
a body;
an extendable test probe assembly comprising:
a seal pad comprising:
a base plate;
an expandable material engaged with the base plate;
a retainer wall configured to retain at least a portion of the expandable material that is expanded when sealed against the borehole wall in a lateral plane of expansion of the expandable material; and
a bore through the base plate and seal pad; and
a cylinder comprising a flow path in fluid communication with the formation through the seal pad bore;
a fluid sample collection reservoir in fluid communication with the test probe cylinder flow path; and
a fluid transfer device configured to transfer formation fluid through the test probe cylinder flow path and into the fluid sample collection chamber.

20. (currently amended) The formation tester of claim 19 where the retainer wall is configured to laterally retain the entire perimeter of the expandable material in a lateral plane of expansion of the expandable material when sealed against the borehole wall.

21. (currently amended) The formation tester of claim 19 where the seal pad retainer wall further comprises an expansion cavity, at least a portion of the expandable material being expanded into the cavity when sealed against the borehole wall.

22. (previously presented) The formation tester of claim 21 where the seal pad expansion cavity is located around the entire perimeter of the expandable material in a lateral plane of expansion of the expandable material when sealed against the borehole wall.

23. (currently amended) The formation tester of claim 19 where the seal pad retainer wall is ~~integrated~~integral with the base plate.

24. (currently amended) The formation tester of claim 23 where the seal pad retainer wall comprises a rib on at least a portion of the base plate.

25. (currently amended) The formation tester of claim 19 where the seal pad retainer wall comprises a surface around the entire perimeter of the expandable material in a lateral plane of expansion of the expandable material when sealed against the borehole wall.

26. (canceled)

27. (canceled)

28. (original) The formation tester of claim 19 where the seal pad expandable material comprises an elastomeric material.

29. (original) The formation tester of claim 19 where the seal pad expandable material comprises rubber.

30. (original) The formation tester of claim 19 where the seal pad expandable material comprises Teflon.

31. (original) The formation tester of claim 19 further comprising a sensor for sensing a characteristic of the formation fluid sample.
32. (previously presented) The formation tester of claim 19 where the body is configured for being lowered into a borehole on a wireline.
33. (previously presented) The formation tester of claim 19 where the body is configured for being lowered into a borehole on a drill string.
34. (original) The formation tester of claim 19 where the fluid transfer device comprises a fluid pump.
35. (currently amended) A method for collecting a formation fluid sample from the wall of a borehole comprising:
inserting a formation tester into the borehole, the formation tester comprising a body;
extending an extendable test probe assembly from the body into sealing contact with the borehole wall, the test probe assembly forming the seal with at least a portion of an expandable material engaged with a base plate, at least a portion of the expandable material expanding during engagement of the borehole wall;
retaining the expansion of at least a portion of the expandable material in a lateral plane of expansion with a retainer wall;
collecting a formation fluid sample through a test probe assembly cylinder in fluid contact with the formation through a bore in the seal pad, the test probe assembly cylinder comprising a flow path;
transferring the formation fluid sample with a fluid transfer device from the test probe assembly cylinder to a fluid sample collection chamber.
36. (currently amended) The method of claim 35 further comprising retaining the entire perimeter of the expandable material in a lateral plane of expansion with the retainer wall.

37. (original) The method of claim 35 further comprising expanding at least a portion of the expandable material into a retainer expansion cavity when engaging the borehole wall.

38. (previously presented) The method of claim 37 further comprising expanding the expandable material into the expansion cavity around the entire perimeter of the expandable material in a lateral plane of expansion.

39. (canceled)

40. (canceled)

41. (original) The method of claim 35 further comprising analyzing the formation sample for a characteristic of the formation fluid with a sensor.

42. (original) The method of claim 35 further comprising inserting the formation tester into the borehole on a drill string while drilling the borehole.

43. (original) The method of claim 42 further comprising ceasing the drilling while collecting the formation fluid sample, withdrawing the extendable test probe assembly into the formation tester body, and continuing to drill the borehole.

44. (original) The method of claim 35 further comprising inserting the formation tester into the borehole on a wireline tool.

45. (original) The method of claim 35 further comprising transmitting a signal indicating the sensed formation fluid characteristic through a telemetry system to the surface.

46. (previously presented) The method of claim 13 where the expandable material comprises an elastomeric material.

47. (previously presented) The method of claim 13 where the expandable material comprises rubber.

48. (previously presented) The method of claim 13 where the expandable material comprises Teflon.

49. (previously presented) The method of claim 35 where the expandable material comprises an elastomeric material.

50. (previously presented) The method of claim 35 where the expandable material comprises rubber.

51. (previously presented) The method of claim 35 where the expandable material comprises Teflon.